Where N is the number of gait variable samples available, Y is the target stability, and a is an estimation of the combined parameters that describe the instability. The equation derivations are achieved using the group method of data handling described by Madala and Ivakhnenko (Madala, H., and A. Ivakhnenko, "Inductive Learning Algorithms for Complex Systems Modeling," *CRC Press*, Boca Raton, Fla., U.S.A., 1994), fully incorporated herein expressly by reference. Solving the derived model equations with the gait variables results in a numeric estimation of the instability. For robustness, estimations from each of the equations become a vote added to a more generalized estimation of the stability. Stability is signified by decreased variability in step to step movement sessions time plots. A unit less (nondimensional) index number can be assigned based on population statistics.

After conclusion of the functional level assessment and/or the instability assessment, the user has information from which to prescribe a prosthesis matching the activity level or instability of the user. For example, after calculating an activity level of 4, the user may prescribe a prosthesis having lightweight, high strength materials for use in building the prosthesis. Also, a foot having an energy storage/release component may also be prescribed. On the other hand, if the functional assessment level is a 1, the user may prescribe a prosthesis having less exotic materials, such as stainless steel or aluminum materials, and basic unmodified rubberized materials as the foot with minimal energy storage/release capability. The method for determining stability assists the clinician to track the progress of an amputee to determine whether the amputee's progress is increasing to decreasing.

While illustrative embodiments have been illustrated and described, it will be appreciated that various changes can be made therein without departing from the spirit and scope of the invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A system for assessing an activity level of a user, comprising:

a sensor configured to be affixed to the user configured to determine a metric of the user;

a memory configured to store the metric of the user;

a processor coupled to a server, wherein the processor is configured to adjust the sensor to determine the metric of the user, and configured to receive from the memory the stored metric of the user;

the server being in communication with the processor, and the server being configured to:

receive the metric from the processor; and

process the metric to provide a value determinative of a functional ability of a user, wherein the value of the functional ability of the user is an average derived from values obtained from a group consisting of: a value representing cadence variability, a value representing potential movement of the user, a value representing maximum movement of the user, and a value representing a clinical observation of the user.

2. The system of claim **1**, wherein the server hosts a Website that provides at least one selected from a group consisting of a service for determining the value of the functional ability level of the user, a client manager tool, and an online database.

3. The system of claim **1**, wherein the server comprises a remote functional assessment tool.

4. The system of claim **1**, wherein the server determines, based on the metric, the value representing the cadence variability as a variance in an amount of time that the user spends at a plurality of levels of a step rate in a defined period of time.

5. The system of claim **1**, wherein the server determines, based on the metric, the value representing the potential movement of the user as a number of steps taken by the user in a defined period of time.

6. The system of claim **1**, wherein the server determines, based on the metric, the value representing the maximum movement of the user as a maximum number of steps taken by the user in a defined period of time.

7. The system of claim **1**, further comprising:

a docking station configured to couple the processor with the sensor, wherein the docking station communicates with the sensor.

8. The system of claim **1**, wherein the functional ability value is usable to determine a prescription of components for a prosthesis.

9. The system of claim **1**, wherein the determination of the value representing the cadence variability or the value representing the potential movement of the user includes a comparison of the metric for a sample of users.

10. The system of claim **1**, wherein the metric is at least one selected from a group consisting of step tracking, step activity, step rate, time activity, and time tracking.

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